



DOE HEP Budget Status

Glen Crawford

HEPAP

23 Sept 2004



DOE FY04 Budget Status

- Done
- Significant new items (since Feb 2004)
 - QCDOC 5 TFlop Prototype (with NP, ASCR)
 - BaBar IFR Upgrade approved
 - BTeV R&D approved
 - AXION II experiment begun at LLNL
 - HEP demographic survey (LBNL + university)
 - National Academy study of HEP launched
- DOE funding completed in FY04: CDMS, Auger



FY 2003/04 HEP Budget

(B/A in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>% Change</u>
Proton Accelerator-based Physics			
Research	\$ 76.0	\$ 74.3	
Facilities (other than LHC)	241.3	244.4	
LHC	59.2	48.8	
LHC Support	<u>7.3</u>	<u>15.4</u>	
<i>Subtotal</i>	\$ 383.8	\$ 383.1	-0.2%
Electron Accelerator-based Physics			
Research	\$ 27.1	27.0	
Facilities	110.8	118.0	
<i>Subtotal</i>	\$ 137.9	\$ 145.1	+5.2%
Non-Accelerator-based Physics/Research	\$ 44.3	\$ 47.3	+6.8%
Theoretical Physics/Research	\$ 44.8	\$ 49.1	+9.6%
Advanced Technology R&D/Research	\$ 87.3	\$ 96.7	+10.8%
Construction/NuMI	<u>\$ 19.8</u>	<u>\$ 12.4</u>	
TOTAL HEP Budget	\$ 717.9	\$ 733.6	+2.2%
SBIR & STTR (included in Advanced Tech R&D)	\$ (15.9)	\$ (17.4)	



FY2003/04 HEP Budget by “Site”

(B/A in thousands)

	<u>FY03</u>	<u>FY04</u>	<u>Diff</u> <u>(04-03)</u>	<u>%</u> <u>change</u>	<u>Comment</u>
ANL	8,324	8,412	+88	+1.1	
BNL	17,449	16,842	-607	-3.5	
LBNL	34,366	37,977	+3,611	+10.5	SNAP /Detector Development R&D ramps up
FNAL	289,706	290,118	+412	+0.1	NuMI rolls off, but Run II Accel Upgrade ramps up
SLAC	159,146	165,749	+6,603	+4.1	Includes PEP-II, BaBar Upgrades
“Universities”	118,212	125,635	+7,423	+6.3	Includes BaBar upgrades, VERITAS, QCDOC, AXION II
SciDAC	4,785	5,000	+215	+4.5	
LHC	66,510	64,400	-2,110	-3.2	Follows planned profiles
SBIR/STTR	15,883	17,461	+1,578	+9.9	SBIR rate went up in FY04
Other	3,540	2,037	-1,503	-42.5	Undistributed funds and program support



FY04 Budget Summary

- This was a good budget yr (+2% growth)
- Several small new projects got started
- Others successfully completed
- Continued excellent performance of PEP-II and Tevatron and implemented upgrades



DOE FY05 Budget Status

- House passed FY 2005 Energy and Water bill in late June, **+\$16M for HEP**
- Senate debate originally scheduled for July, deferred and not rescheduled
- Continuing resolution appears likely
 - Note recent history: DOE budget signed in Dec (FY04) to late Feb (FY03)



Recent Appropriations History

(B/A in Millions)

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
Congressional Budget Request	\$ 725.0	\$ 738.0	\$ 737.4
House Appropriations Bill	\$ 725.0	\$ 748.0	\$ 753.4
General Reduction (HEP share)	<u>-5.7</u>	<u>-0.2</u>	<u>---</u>
Net	\$ 719.3	\$ 747.8	\$ 753.4
Senate Appropriations Bill	\$ 730.0	\$ 738.0	
General Reduction (HEP share)	<u>-4.6</u>	<u>--</u>	
Net	\$ 725.4	\$ 738.0	
Conference Committee	\$ 727.0	\$ 738.0	
General Reduction (HEP share)	-4.4	**	
Rescission (HEP share)	<u>-4.7</u>	<u>-4.3</u>	
Net	\$ 717.9	\$ 733.6	
Appropriations after reductions	\$ 717.9	\$ 733.6*	
SBIR & STTR	<u>-15.9</u>	<u>-17.4</u>	
Net funding available	\$ 702.0	\$ 716.2	

*Includes \$1.2M of prior year balances

**HEP share of FY04 general reduction was addressed using prior year balances



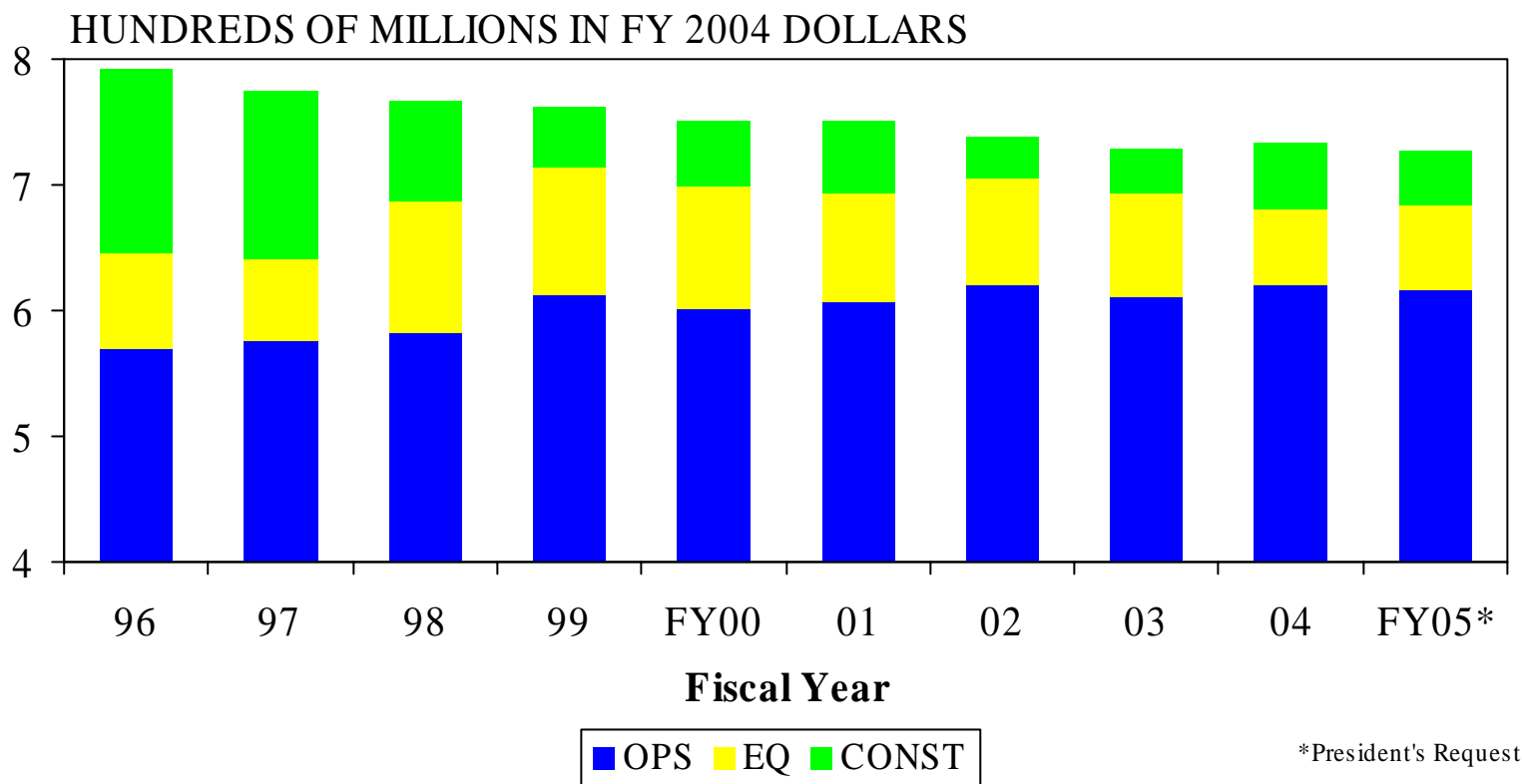
Continuing Resolution “Rules”

- Continuing contracts and grants funded at FY04 levels
- Usually CFO releases 1/12 of the funds each month until CR is lifted
- “No new starts”
- Will impact ongoing projects with significant procurements (e.g., [GLAST](#)) or new projects trying to ramp-up ([BTev](#))



High Energy Physics Funding History

HEP Total Budget





FY05 Budget Prospects

- This will be a tight budget year (+0.5% growth) unless Congress acts.
- Only new project on table is **BTeV**
- Several others look to successful completion: **GLAST, NuMI/MINOS, LHC Accelerator, Run IIb Detectors**
- Unfortunately these do not “free up” nearly enough resources in the out-years (FY06+) if budgets stay flat

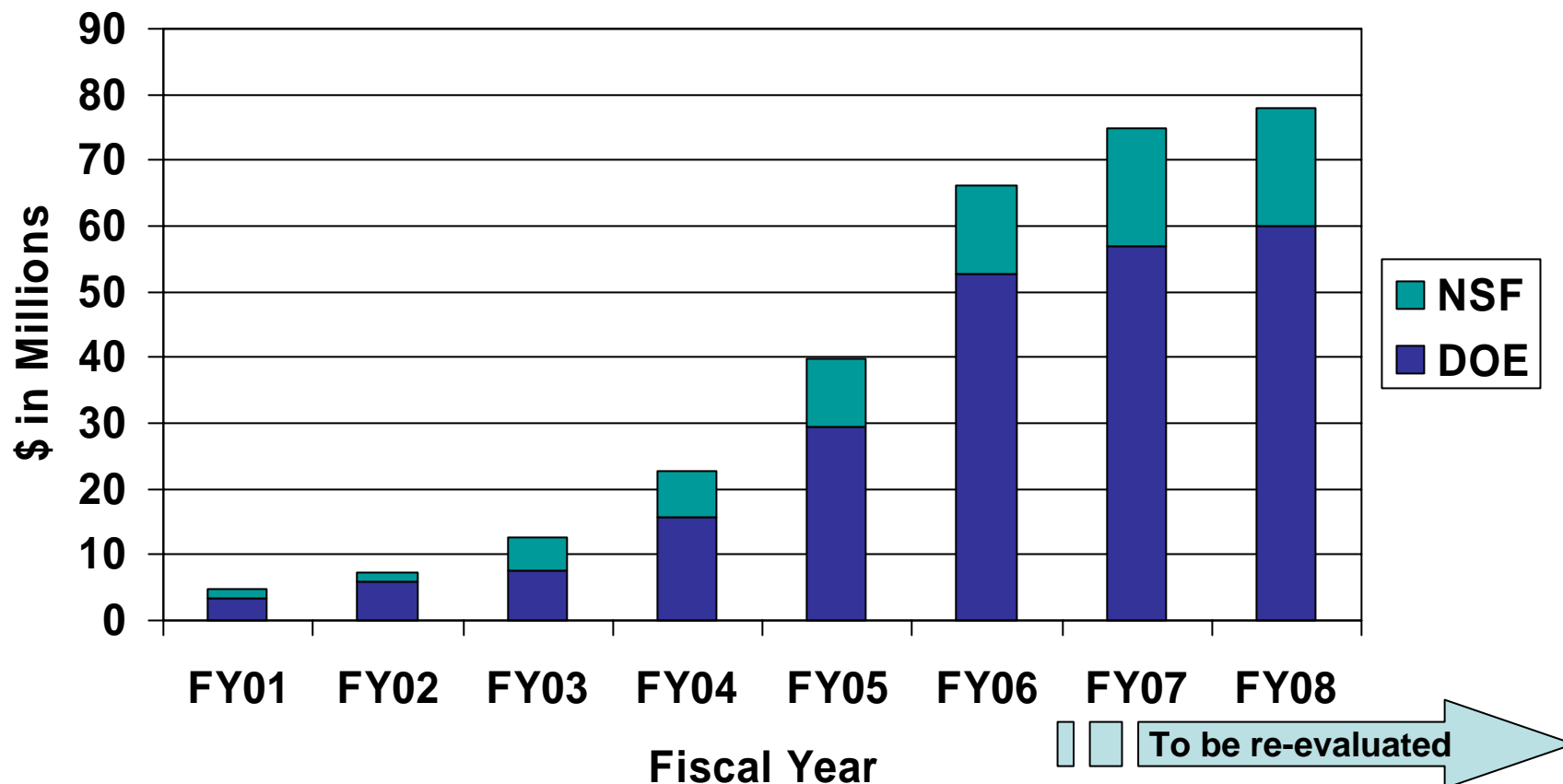


FY2006 Prospects

- “Cloudy...try again later.” FY06 budget is with OMB.
- **OMB + OSTP:** Don’t expect new \$\$. Priorities are:
 - Homeland Security R&D
 - Networking and Information Technology R&D
 - Nanotechnology
 - Physical Sciences (N.B. *Physics of the Universe*)
 - Biology of Complex Systems
 - Climate, Water and Hydrogen R&D
- There are also less favorable analyses.
- There is increased emphasis on out-year planning and profiles.



LHC Research Program Funding Profile (as of June '04)



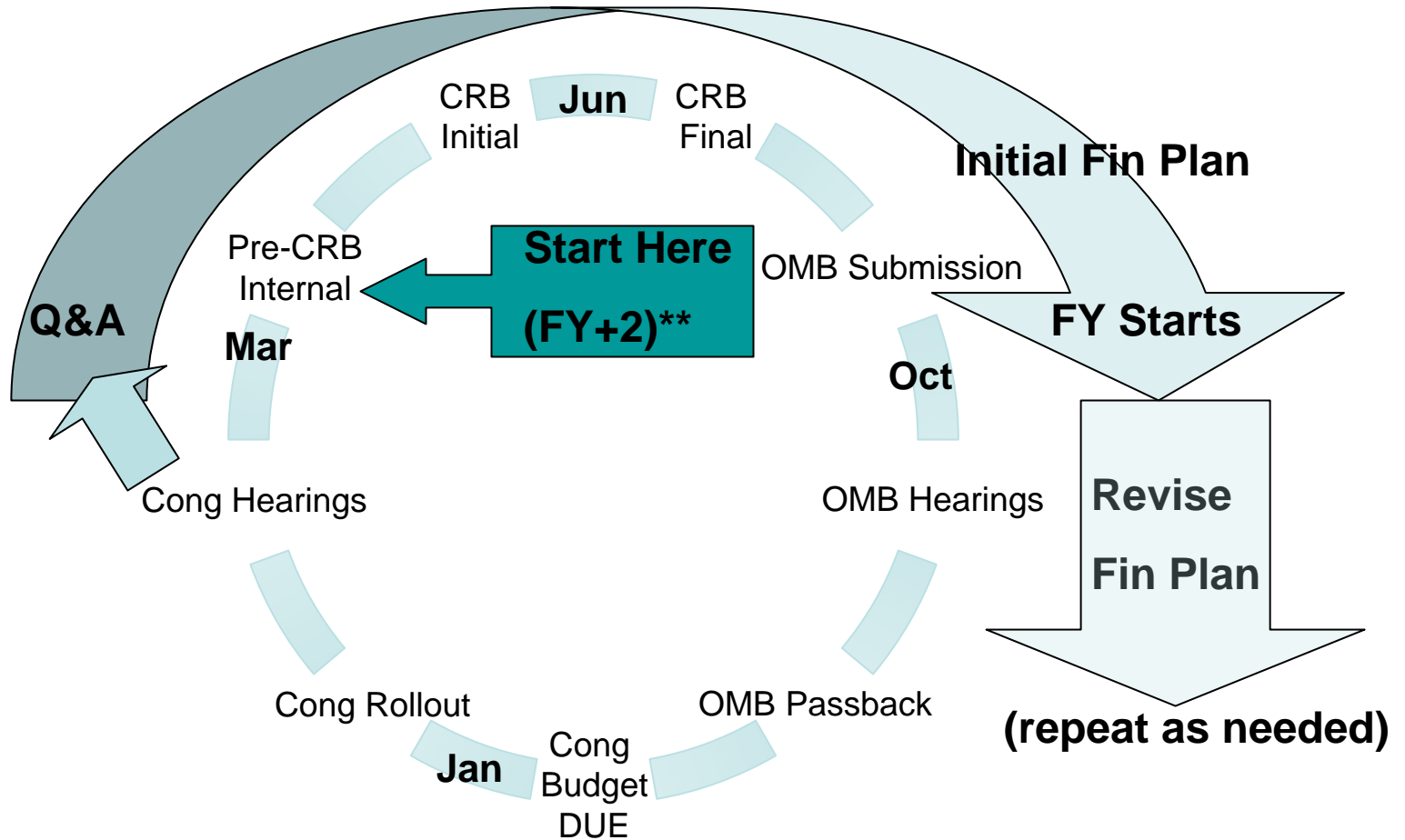


But What about My Project?

- The Office of Science *Facilities Outlook* is the statement of priorities for big-ticket items
- For smaller items ($\$2M < \text{TEC} < \$50M$) we have more flexibility but the budget process still requires that we identify these **well in advance!**
 - We began developing FY2006 budget in March
- In FY2005, less than 5% of the HEP budget is spent on new Construction and Major Items of Equipment
 - This is not a healthy trend for the future, but...
 - The burden in the near-term is Facilities Ops




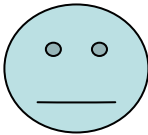

The Nominal Process



****N.B. Any new projects >\$2M need to be identified at this time**



Summary

- FY04:  We were able to do good things.
- FY05:  Will likely be challenging.
- FY06:  Stay tuned.
- We will need to make priority decisions in a resource-limited environment.
- Even “small” new projects (>\$2M) need more advance planning than in the past.



NOTES FOR BUDGET TABLES

1. The numbers shown do not reflect:
 - A. Purchase orders or subcontracts from labs to universities for, e.g., large detector (CDF,D-Zero, ATLAS,...) fabrication. Financial transfers to labs or universities **are** included in totals shown.
 - B. Funding for LHC or SciDAC grants except as noted.
2. The “University” Program includes funding for universities, small research efforts at certain DOE labs (LANL, LLNL, ORNL, PPPL) and other entities (NIST, Smithsonian, etc.)
3. The Laboratory totals include “non-base” funding for conferences, workshops, QuarkNet, and other Washington-administered programs.
4. The FY03 data are final actuals (as-spent). FY04 data are accurate through August 2004. The FY05 data are as per the President’s Request.
5. Totals in columns may not add due to round-off error.